

AMERICAN JOURNAL OF PHOTOGRAPHY

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VOL. XIV.

JANUARY, 1893.

No. 157.

1893.

A HAPPY and prosperous New Year to all subscribers and patrons!—such is the greeting extended by the publishers and staff of the AMERICAN JOURNAL OF PHOTOGRAPHY to all of its readers.

The old year with its trials is a matter of the past. The triumphs scored and disappointments experienced are now facts for individual consideration, congratulations or regret as the case may be. The lessons which they have taught, however, are not to be relegated ruthlessly to the shadows of the past, but should be used for our profit in the future.

The past year in several ways was not an extraordinary fortunate one for the photographic bread-winner, the excessively hot weather in summer and the political excitement incident to a Presidential campaign, tended to reduce the income of the professional photographer. However, on an average throughout the country professional photography is in a good, healthy condition, with every indication of increasing prosperity during the new year.

The present year of grace 1893 is destined to be an important one in the history of our united country. The most important event will be the World's Fair at Chicago. The effect which this enterprise will have upon our industrial development will be wide-spread and far-reaching. Its benefits will be felt all over

our vast country,—the present means of communication and travel will bring every part of the country in close communication with the fair, while the daily press with its telegraphic ramifications will bring the proceedings at the industrial centre before its readers each day in the most remote sections of our land.

Photography will be prominently represented at the World's Fair. Exhibits will be there from all parts of the globe, displayed side by side for study and comparison. Fortunate will be the professional photographer here who can avail himself of this great opportunity of a lifetime to study effects, enlarge his ideas, and broaden his views.

The series of technical papers which it is intended to read upon photographic subjects will also prove a valuable addition to photographic literature.

We will now say a few words about ourselves. With the present number commences the fourteenth year of the journal. As in the past, our efforts will be to keep up to our present standard in every department; our columns, devoted to photography in its widest sense, are crisp and clean, and independent of control from any clique or organization.

That the efforts of the editorial staff and publishers are appreciated, is proven by the increasing subscriptions, and the demand upon our advertising pages,—two guide boards which point out the path of encouragement which leads to success.

Snap Shots at Royalty.—King George is to Aix what the Prince of Wales is to Homburg. He is remarkable for extreme assurance, tempered with reserve, and wears his hat slightly on the side of his head as he strides along the streets, looking straight at people as if to invite them to get out of his way. He is an habitue of the casino and the card rooms. On alighting from his carriage yesterday a number of photographers ran up to take snaps at him. Seeing this the King good-naturedly stopped and "stood fire," turning his face toward them. On returning to his carriage when the visit was over he did the same, saying aloud when he thought they ought to have done: "Ca y est" (It's all right, is it not?)—a remark that elicited much laughter.—*London News.*

SOLUTIONS OF DEFINITE PERCENTAGE
COMPOSITION.

EDGAR RICHARDS.

AMONG all the mass of photographic tables that are published in the different magazines and year books, I do not remember to have come across one showing the quantity in troy grains necessary to be weighed out in order to obtain a solution of a definite percentage composition. As long as photographers will employ the unscientific and confusing system of weights and measures now in vogue, known as apothecaries, in preference to the easy and rational decimal system, we need not look for much improvement in the manner in which photographic formulas are stated or used.

In the French or decimal system of weights and measures the relationship between liquids and solids is simple and uniform, and the results are invariably stated in percentage. The unit of weight is the gramme ($=15.43235$ troy grains), and a gramme of distilled water at its greatest density, viz. 4°C. or 39°F. , measures exactly one cubic centimetre (c.c.). The kilogramme contains 1000 grammes. The litre 1000 cubic centimetres.

In the United States the fluid ounce is the measure of 455.6944 troy grains of distilled water and in Great Britain it is the measure of 437.5 troy grains or one ounce avoirdupois. The U. S. Pharm. ounce weighs 480 troy grains. It is necessary, therefore, for every photographer, who wishes to work intelligently, to know to which standard his weights and measures are graduated.

To those of your readers who may wish to avail themselves of the various formulas printed in percentage composition, or grammes per litre, in the different French and German periodicals, without having to calculate the equivalent amounts in U. S. and G. B. Pharm. standards, I submit the following tables, which show the amounts in troy grains it is necessary to weigh out in order to obtain a solution, in fluid ounces, of a definite percentage composition.

TABLE I.

SHOWING THE AMOUNT IN TROY GRAINS TO MAKE A SOLUTION OF
DEFINITE PERCENTAGE COMPOSITION.

U. S. PHARM. STANDARD FLUID OUNCE.

	Weigh out for per cent. in					Remarks.
	1 oz. solution.	4 oz. solution.	8 oz.* solution.	16 oz.* solution.	32 oz.* solution.	
	Troy grains.	Troy grains.	Troy grains.	Troy grains.	Troy grains.	
1 per cent.	4.557	18.2	36.5	72.9	145.8	N.B.—Solids to be weighed out and solutions made up to 1, 4, 8, 16, and 32 fluid ounces respectively.
2 "	9.114	36.5	72.9	145.8	291.7	
3 "	13.671	54.7	109.9	218.8	437.5	
4 "	18.228	72.9	145.8	291.7	583.4	
5 "	22.785	91.2	182.3	364.6	729.2	
6 "	27.342	109.9	218.8	437.5	875.0	
7 "	31.899	127.6	255.2	510.4	1020.8	
8 "	36.456	145.8	291.7	583.4	1166.7	
9 "	41.013	164.1	328.2	656.3	1312.6	

* Approximately equal to $\frac{1}{4}$, $\frac{1}{2}$, and 1 litre respectively.

TABLE II.

SHOWING THE AMOUNT IN TROY GRAINS TO MAKE A SOLUTION OF
DEFINITE PERCENTAGE COMPOSITION.

G. B. PHARM. STANDARD FLUID OUNCE.

	Weigh out for per cent. in					Remarks.
	1 oz. solution.	4 oz. solution.	8 oz.* solution.	16 oz.* solution.	32 oz.* solution.	
	Troy grains.	Troy grains.	Troy grains.	Troy grains.	Troy grains.	
1 per cent.	4.375	17.5	35.0	70.0	140.0	N.B.—Solids to be weighed out and solutions made up to 1, 4, 8, 16, and 32 fluid ounces re- spectively.
2 "	8.750	35.0	70.0	140.0	280.0	
3 "	13.125	52.5	105.0	210.0	420.0	
4 "	17.500	70.0	140.0	280.0	560.0	
5 "	21.875	87.5	175.0	350.0	700.0	
6 "	26.250	105.0	210.0	420.0	840.0	
7 "	30.625	122.5	245.0	490.0	980.0	
8 "	35.000	140.0	280.0	560.0	1120.0	
9 "	39.375	157.5	315.0	630.0	1260.0	

* Approximately equal to $\frac{1}{4}$, $\frac{1}{2}$, and 1 litre respectively.

To illustrate, take for instance the formula for the new developer Amidol, which consists of a two per cent. solution and is stated as follows:

Amidol,	20 grammes.
Sodium Sulphite,	200 "
Water to,	1 litre.

Converted into U. S. and G. B. Pharm. Standard, we have for an eight-ounce solution

	U.S.	G.B.
Amidol,	72.0	70. troy grains.
Sodium Sulphite,	729.0	700. "
Water to,	8 fl. oz.	8 fl. oz.

THE HAND CAMERA IN ARCTIC EXPLORATIONS.

BY W. E. MEEHAN.

OF THE PEARY RELIEF EXPEDITION.

I consider a hand camera an indispensable part of the outfit of an explorer. I am led to this conclusion through my recent journey to North Greenland as a member of the Peary Relief Expedition. I feel sure that others of the same expedition will give testimony in the same direction as myself. I used an Eastman's No. 4 Junior Kodak, and the results were most gratifying. It may be that with a regular camera and dry plates, a professional or advanced amateur photographer can—other things being equal—obtain generally better results than from the use of a hand camera and rollable films. But where long or difficult land journeys are to be made, such as was frequently the case in the Greenland Expedition just referred to, where as a matter of necessity luggage must be reduced to a minimum in size and weight, a camera, with its attendant bulky and heavy dry plates, is scarcely practicable, however desirable. Many times, also, while on my expedition to the North, I came across places worthy to be photographed, but so nearly inaccessible that with anything else than a hand camera the picture could not have been taken.

True, I found the Kodak possessed some disadvantages. With the peculiar atmospheric effects I found it extremely difficult to get a proper focus without first taking an actual measurement,—a matter not always easy or possible of accomplishment. I found sometimes also in developing that otherwise fine pictures had been ruined by some grave defect in the film, and by some curious and exasperating coincidence such defect was usually in a negative of some especially valuable object. One instance in particular I recall with much disgust. At Godthaab, a settlement in South Greenland, at the request of the Governor of the place, two Eskimos gave an exhibition for us of their expertness with Kyaks, or native boats, one feature of which was in forcing the craft of one over the other without either being upset,—a rare and difficult feat. They accomplished it five or six times, and each time snap shots were taken by the hand-camerists. By an exasperating coincidence every picture failed to turn out well, in the cases of two of the party because of films of poor emulsion; of a third the cause I do not know. Of mine in every case there were disfiguring marks directly through the center of the films, accompanied by perhaps twenty or thirty small punctures.

Outside of a few cases like these, however, whatever failures I had could generally be traced to my own fault. As an offset to these troubles I have more than two hundred good pictures of that wonderful and mysterious island above the Arctic circle, which will always be a pleasure for me to look at, and a source of delight and instruction to my friends. Wherever I went, whether along the shores of the many fiords and valleys, or up the precipitous mountains to the table lands of Greenland, or to its awful and apparently limitless ice cap, my number four Junior was carried over my shoulder, always ready to record for me what I desired.

As a result through this valuable instrument I have photographs of natives in many and curious but natural attitudes, taken unawares, and sometimes in spite of themselves. One of these shows two Godhaven Eskimo girls running away as fast as their seal-skin-trousered legs could carry them in order not to be photographed. Another portrays a woman, overpowered by the heat,

taking off her sealskin jacket—her only upper garment. A third has caught a mischievous little imp in the act of rifling the pocket of one of the members of the party, of sugar. Still another has caught a couple—a married couple at that—love-making. Besides these I have photographs of scenery famous in Arctic works of travel, but never before taken by camera or kodak. Prominent among these are the coast lines from McCormick Bay to some distance in Smith's Sound, the scene of so many disasters to Arctic navigators, including the splendid and picturesque cliffs of Cape Alexander.

Quite as valuable to me as the wonderful personal experiences in this great journey are the photographic reminiscences of it. Were I going to take the same or another important journey again it is possible that I might take with me a camera for special work, but camera or no camera, the compact, quick-acting, easily-carried Kodak would have a place in my outfit.

AERIAL PERSPECTIVE.

XANTHUS SMITH.

THE matter of focusing the image upon the ground-glass or focusing screen of the camera, with regard to a determination of the amount of definition in the photograph, is so important a one in its relation to artistic effect, that we feel we may, without apology, be permitted to supplement the excellent article by Prof. W. K. Burton, "The Stop to Use," published in the November number of this journal, by a few remarks which may make more intelligible what Prof. Burton evidently feels to be the case, but is not clear enough upon to assert as definitely as he perhaps should.

Objects as we see them in reality, in addition to extending on a plane parallel to our eyes, also extend towards us and from us, and as one object after another is added to those constituting the scene before us, there is an actual recession which, as in the case of landscape scenes, if we would travel from our point of sight to the extreme boundary of our scene, would often take us—very many miles away from our starting point. This continual

receding of parts, which is often spoken of as the natural perspective of a view, is so common to us that it does not form a matter of thought or arrest the attention in any way until we come to see a representation of such scene or view upon a flat surface, as in a drawing, or painting, or photograph. Then it is that we feel the shortcoming of art, which cannot in any way advance or recede beyond the surface plane of the canvas or paper, except as in the case of scenery in theatres, and yet this very shortcoming contributes one of the greatest beauties and features of attractiveness in a well-executed work of art, because by the art of the painter is overcome the appearance of want of relief, and the very deceptiveness of that which he presents to our vision adds to its charm. It is the knowledge of this fact, and the effort of the higher class photographer to vie with the painter, which has given rise to the discussion which we see continually in progress of the effect of certain alterations of focus in portraying scenes with the camera to bring about, if possible, this perspective effect.

There are two things upon which the painter mainly relies to bring about the appearance of recession. The one, perspective, which is really the diminishing in size of objects, under certain absolute laws, as they recede from the eye, which is called linear perspective. The other, the intervention of atmosphere between the receding passages, which is known as aerial perspective. The former is unvarying, the rules being the same under all conditions, whilst the latter is simply accidental, varying with the conditions of the weather and other uncontrollable circumstances. In addition to these two means within the power of the painter to produce his perspective deception are others, of minor importance, though often made use of, such as the choice of bold features in his foreground, brilliant lights, deep shadow touches, and coarser or more vigorous handling with his brush or pencil. Some of these may be made available by the photographer, others not.

The chief reliance of the landscape photographer for the attainment of the effect of retirement in the receding passages of his picture, must be the intervention of atmosphere, and here again is a nice point, for there must be just enough of such haze

to bring about the desired effect. He cannot, as the painter does, at his will, change and vary, perhaps bringing in more here and clearing away there, thus sharpening and heightening his effects,—he must choose a time when there is such prevalence of haziness as precisely suits his aim. Not too much, because then it will be impossible to attain a sufficient amount of detail in his foreground before his distance will have been irrevocably over-exposed, and not too little, or he will find his distant features failing to retire, and his perspective effect will be lost.

There is a continual complication in this matter of effect of recession, between studio or group photography, and that of open landscape views. In the former much more may often be conveyed by alteration of focus than in the latter, because the effect of blurring is much greater in looking at an object a few feet from the eyes, of other objects in the rear of it, than is the case in taking a comprehensive out-door view. Therefore the act of vision is better accommodated by the nature of circumstances.

In the case of groups, and what are known as picturesque foreground bits, wherein the whole subject pertains comparatively to the foreground, atmosphere can have little or no influence in the matter, and a blurring of the background may do much in the way of accentuation of the principal feature of the work. Let us especially note here, however, that such blurring by unaccentuated focus, can have little benefit when the background features are very marked in light and dark, or vie in size and form with the principal feature, or are ill-shapen. When a really fine picture is desired such must be avoided.

Some painters, more especially modern, have done much in giving relief to their figures by finishing the latter highly and painting whatever may have formed the background, even though it were near objects, in a blurred manner. We recall some work by De Koninck as especially happy in the effect of relief produced in this way, but the background features were so chosen as not to vie too much with the subject figure.

Backgrounds so treated, that is to say blurred by being put out of focus, must be of such a character as to be considered

background solely. Whenever any of the background objects assume sufficient importance to be in any way a prominent part of the picture, it becomes necessary to accentuate the focus sufficiently upon them to make them distinct.

To return to landscape work: in order to attain the best perspective effect, we must necessarily choose a time for taking our views when there is just that nice amount of haziness which will give a due softening of each retiring passage of the work. Only the most careful observation and continual practice will train the photographer in this matter, not only, as we said before, because the precise amount of obscurity must be determined, but also because its character will make much difference, there being a certain bluish white smoky atmosphere prevailing sometimes which will much more potently affect the sensitive film than will be the case under other conditions of murkiness.

There can be no attainment of this desired artistic effect so perfect as that of taking a view under the most favorable atmospheric conditions. No simple blurring of distance by imperfect focus will attain the desired aim when atmosphere is entirely absent.

My remarks must be taken in the true artistic sense. We are well aware that this quality of atmospheric perspective is understood by but few in this country, and even in an admirable little work recently published in Paris, upon orthochromatic photography, the author gives two examples of an extended view with distant mountains and middle-distance town, under what an artist would consider a favorable atmospheric condition, to show how much superior the view is taken upon the orthochromatic plate because the appearance of haziness is entirely overcome by it, and the town and distant mountains show up in all the distinctness of detail which would pertain to a clear atmosphere.

The best English photographers are working in the true artistic way, and those who are relying upon good composition and light and shadow, with the proper amount of atmosphere, are having the best success. Some of those who have relied solely upon alterations of focus to attain their aim, notably Mr. Emerson, having given up in despair.

A NEW PHOTO-INTAGLIO PROCESS.*

BY LOUIS E. LEVY.

WITH the exception, perhaps, of the domain of electricity, there is no other special field wherein the recent advances of science have opened so many avenues of progress, and affected such notable changes, as in the range of the graphic arts. From the time when, fifty years ago, the earlier researches of Scheele and Seebeck on light-sensitive compounds were first wrought into practical shape by Niepce, Daguerre and Talbot, the applications of photo-chemistry have increased in number and extent to such a degree that to-day the various processes of photographic reproduction would require a long catalogue to merely name them. Many of these variations, though marked, are unessential; others have proved of scientific interest only, while quite a long list of practical photo-reproductive processes have from time to time been superseded by simpler and more efficient methods.

The new photographic process which I have the pleasure of announcing to the Institute this evening is, as I trust will appear in practice, an effective and greatly simplified method of producing a photographic reproduction in the form of an intaglio engraving. Such engravings, technically known by the French term "photogravure," have been produced for some years past by a variety of photo-chemical processes, the most notable of which are those wherein the result is attained by means of a chrome-gelatin film. The fact that a film of chrome-gelatin becomes insoluble when exposed to light, and remains more or less soluble according to the degree to which light is permitted to act upon it, has been made the basis of a variety of processes for the production of photo-engravings. The gelatin film long served as the most effective means for the production of photo-engravings in relief, and still furnishes the basis for the production of photo-engravings in intaglio. For both purposes the sensitised gelatin film is exposed under a transparent negative or positive, as may be requisite in the subsequent procedure; the unaffected

* Read before the Franklin Institute.

portions and unreduced quantities of the exposed film are either swelled by absorption of a liquid, or are dissolved and washed out, and the film then dried. In this condition it may be printed from direct, or it may be used as a mould to produce a reverse in a fusible metal; or it may be covered with an electrolytic surface to receive an electrottype deposit, or it may be moulded in plaster, wax, gutta-percha, or other suitable substance, from which, in turn, a reverse can be made by casting or electrotyping. Intaglio photo-engravings have also been produced by a process wherein the varying amounts of reduced silver left in the developed gelatino-bromide plate are made to serve as a corrosive or etching agency on a plate of copper on which the bromide plate is imposed, but in general practice the washed-out gelatin film has thus far proved the most practical means to the desired end.

In all photo-intaglio processes hitherto known or practised, the nature of the plate produced and the end sought to be attained is akin to that which is technically known as a mezzotint or aquatint engraving. The essential feature of such engravings consist of the varying depths to which the design is sunken in the plate, the graduations of depth in the plate corresponding to the graduations of light and shade in the printed impression. The ink being rubbed into the depressions of the design and rubbed off from the surface of the plate, the highest parts of the engraving represent the highest lights of the design, the deepest depressions render the darkest shadows, and the intermediate depths produce the half-tone gradations of the picture.

The difficulties attending the production of photogravure plates with the particular degree of graduation of depth which is requisite for an artistic effect in the printed impression are such that the process is practised only by a few, the skill and experience needed for the work being attained only after a long practice, and then in a full measure only by such individuals as possess artistic capacity and training. In only one establishment, and that in Paris, is the work being brought to a high degree of quality, and there, as well as in other workshops, the hand of the

skillful retoucher is frequently to be credited with the largest share in the final result.

To free this result as far as possible from the limitations of human handiwork, and to bring it forth under the more uniform and definite control of scientific procedure, has been my aim in the experiments which have resulted in the present method. This method I have named "Photo-Mezzotint," not because that is the most exact term by which to denote it, but because all the other good names have already been pre-empted and made to do service in other directions.

The essential feature of the new method lies in the fact that the picture, instead of being obtained from a graduated depth of the engraving, is produced from a sunken surface of uniform depth, the gradations of light, half-tone and shade being effected by minute lines and stipples of varying thicknesses, but of uniform distance apart from centre to centre. In this respect the photo-mezzotint may be regarded as a development of the so-called half-tone relief process, the true mezzotint or photogravure effect being attained by reducing the thickness of lines and stipples and multiplying their ratio to the surface to such a degree as to render them invisible to the naked eye. In that way all the finest gradations from pure white to deep black are obtainable, with the result shown by the specimens before us. In these the picture is made up of equi-distant stipples, varying from a microscope point up to a size where the coalesce into a solid black, the half-tones consisting of stipples of about one four-hundredth of an inch in diameter, and about 44,000 to the square inch. If a coarser stipple is used the effect varies from that of a mezzotint and approaches more nearly that of a line engraving, the lights and shades being made up of perceptible lines and stipples, like the effects of a steel or copper-plate engraving of equal texture.

The processes at present in vogue for the production of photo-intaglio plates require not only long experience and a high degree of manipulative skill, but also take up quite a length of time—frequently a week or more—for their completion, and the plate, after passing the stages of the photo-chemical process, has then

still to be extensively helped by the work of the retoucher. The retouching of photogravure plates inevitably introduces a degree of uncertainty as to the accuracy of the reproduction, the result as left by the retoucher being frequently very different from the original in its disposition of lights and shades. By this new process all these undesirable factors are eliminated; its manipulations are far more facile, the length of time for the entire work is reduced to a few hours, and the result is complete without the supplementary aid of the skillful engraver, except, possibly, in cases of local blemishes or accidental defects. It is, therefore, reasonably to be assumed that this new method of intaglio engraving, which has been the subject of an application for letters-patent, may be regarded as a desirable addition to the category of the graphic arts.—*Journal of the Franklin Institute.*

Spectrum of the Comet.—The Holmes comet has been systematically observed at the Lick Observatory on Mount Hamilton since November 8th. Its position has been accurately measured by Prof. Schaeberle with a meridian circle and by Prof. Barnard with a twelve-inch telescope. The latter has also secured a good photograph of the comet. Mr. Campbell has observed its spectrum visually and photographically with the great equatorial. The observations show that in many respects it is the most remarkable comet of recent years. On November 8th its diameter was one-sixth that of the moon. It was so sharply defined that it resembled a planetary nebula. The spectrum is unique. All parts of it give a continuous spectrum, but underlying this there is certainly a trace of the green band, in which respect observations here differ from others reported. Computers agree that it is not Biela's comet, and that it is neither close to nor approaching the earth. In fact, though it is moving in an ellipse around the sun, its orbit seems to lie entirely outside the orbit of Mars.

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A WELL-DESERVED HONOR.

AT the stated meeting of the Photographic Society, held December 14th, 1892, the Board of Directors submitted for approval a report by a committee consisting of Messrs. George M. Taylor, Chairman; George Vaux, Jr., Edmund Stirling, John G. Bullock, and Charles R. Pancoast, who were appointed to make a careful study of the subject and report as to the advisability of some form of recognition by the society of Mr. Ives's work. The committee in their report said:

Before entering into any description of what Mr. Ives has done, your committee deem it wise they should, in their report, clear the ground of any misapprehensions which might arise from the terms used in dealing with the subject. Mr. Ives's process is not the kind of color photography for which the world has been looking, and may never find, nor is it "photography in natural colors" in the sense in which those terms are commonly understood. In a technical and scientific sense "natural colors" are those which are produced in any substance by the direct effect of light itself, acting in accordance with the laws of nature. Mr. Ives has, nevertheless, realized one solution of the problem, and the colors which are reproduced from nature by his process are as correct as are ordinary photographs in rendering in monochrome the effects of light and shade. In other words, "Composite Heliochromy," being a purely photographic process, is subject to the same limitations which circumscribe photography. When a process of photography is perfected which will avoid the defect of flattening the high lights when a sufficient exposure is given to bring out detail in the shadows, and the defect of undue increase of contrast in the middle shades, then the results of composite Heliochromy will be perfected in like degree.

Mr. Ives's system of color photography, which he has named "Composite Heliochromy," consists:

1. In the production of a triple photograph or chromogram, one image of which represents, by its light and shade, the effect of light from the object upon the fundamental red sensation,

another the effect upon the fundamental green sensation, another the effect upon the fundamental blue-violet sensation, in accordance with the Young-Helmholtz theory of color vision, and the actual measurements by Maxwell and Abney of the relative power of different spectrum rays to excite the respective fundamental color sensations.

2. The optical superposition of the three images of the chromogram, either by means of a triple optical lantern or in a table instrument known as the Heliochromoscope, in which the image of the red sensation is seen by red light, the image of the green sensation by green light, and the image of the blue-violet sensation by blue-violet light, but with the three blended together to form a single image, which reproduces the light and shade and colors of the objects photographed.

The triple photograph is made by a single exposure, on a single sensitive plate, and from a single point of view, by means of a special camera of Mr. Ives's invention, in which the incident light is divided by the partial reflection and partial transmission of light by transparent mirrors ingeniously arranged to secure the projection of the three images on a single plane with identical perspective. The sensitive plates employed are sensitive to all the visible spectrum rays, which are made to act in the production of the three images in proportion to their power to excite the respective fundamental color sensations. This result is accomplished by filtering the light which goes to each image through a selective color screen, which has been adjusted by experiment in photographing the spectrum itself, to secure in the spectrum photograph a density curve corresponding to the graphic curve of the same sensation in Maxwell and Abney's diagrams. The adjustment of such a camera can only be made by a scientific expert, familiar with the laws of optics and the use of the photospectrograph and the photometer; but when the adjustment is once made, the successful operation of the process is brought within reach of any skillful amateur photographer, no more operations being necessary than for the production of an ordinary negative and lantern slide.

AMERICAN JOURNAL OF PHOTOGRAPHY,
JANUARY, 1893.



THE HAND CAMERA IN ARCTIC EXPLORATIONS.

(a) GROUP OF NETULUMIE NORTH GREENLAND ESKIMOS.

(b) ICEBERG AND FLOE ICE IN MERCHISON SOUND.

NEGATIVES WITH KODAK
ON EASTMAN FILMS BY WILLIAM E. MEEHAN.

The heliochromoscope is a neat table instrument, containing the same system of reflectors as the camera. By its use, the chromogram is seen as a single picture, reproducing the natural colors as readily as a stereogram is seen in the stereoscope, reproducing binocular vision.

After a brief review of the history of experiments in this line, the committee gave the following summary of Mr. Ives's claims:

"1. A triple photograph, one image of which represents by its light and shade the effect of light from the object upon the fundamental red sensation, another the effect upon the fundamental green sensation, another the effect upon the fundamental blue-violet sensation. The claim dates from November 21st, 1888 (Journal of the Franklin Institute, January, 1889), previous to which date no one else had made photographs answering to this description, or recognized the principles involved. Such photographs are obtained by a method of precision, in accordance with actual measurements of the effect of different spectrum rays upon the separate fundamental color-sensations." (U. S. Patent No. 432,530, July 22d, 1890.) . . .

2. "A camera producing the triple photograph on a single sensitive plate, by a single exposure, from one point of view." (U. S. Patent, No. 475,084, May 17th, 1892.)

It is a well-known fact that many unsuccessful attempts were made to devise such a camera, and that several provisional patents were taken out for ideas that failed to accomplish the desired result.

3. "The heliochromoscope, the only successful device for optically recombining the three images of the chromogram to form one image on the retina of the eye reproducing the colors." (U. S. Patent, No. 475,084, May 17th, 1892.)

Mr. Ives also points out that it is important to recognize that his system makes photographs by the action of all visible spectrum rays, but shows them by means of three kinds of spectrum rays only, and that nobody else saw the necessity for such a procedure, although no other is possibly in accordance with the modern theory of color vision.

It is further claimed that the above-mentioned improvements have:

1. Solved the problem of reproducing the natural colors by photography.

2 Simplified the procedure so much as to make it possible for any good photographic operator to make the photographs, when supplied with the special camera, even if he have no knowledge whatever of color science.

It appears to this committee that Mr. Ives's claims are sustained, not only by argument and references, but also by his exhibition of results, which may be fairly said to be wonderful improvements upon anything obtained by his predecessors. In fact, while the results obtained by Du Hauron and others are described as crude and unsatisfactory, Mr. Ives shows by his process in the heliochromoscope reproductions so perfect that it is sometimes difficult to realize that one is not looking at a reflection of the object itself, instead of a photograph.

The committee of the Board recommended the adoption of the following:

Resolved, That the Board of Directors recommend to the Society the adoption of the following preamble and resolution:

Whereas, Frederic E. Ives, of Philadelphia, has by the application of his new principle in composite heliochromy (dating from November 21st, 1888), made a practical solution of the problem of recording and reproducing by photographic means the colors of nature; and

Whereas, Mr. Ives has, not only in this connection, but in many other ways, notably in the field of photo-mechanical printing processes, orthochromatic photography, and optical projection, made distinguished contributions to the progress of the art and science of photography; and

Whereas, The Photographic Society of Philadelphia is incorporated for the special object of increasing and diffusing "the knowledge of those natural laws which relate to the action of light, and particularly to promote improvements in the art of photography;" it is therefore

Resolved, That, as a special recognition of the eminent scientific labors of Frederic E. Ives, a gold medal is hereby awarded to him by the Photographic Society of Philadelphia.

The resolutions were unanimously adopted by the society, there being a large attendance of members.

SPORT WITHOUT A GUN.

BY ERNEST INGERSOLL.

IS it not possible to have enjoyment and excitement in outdoor adventures without the use of the gun or deadly traps—sport without cruelty?

Let us not be unreasonable. Fierce animals which threaten our lives, happiness or property—tigers, panthers, poisonous reptiles, or other creatures which interfere with farming and gardening, as gophers and the like—must be killed. It is necessary, too, in order thoroughly to study the animal kingdom, that we should be able to examine the anatomy of all animals; so that our argument is against the indiscriminate and useless making of "collections" by persons who are mere amateurs, or worse, when the country abounds in well-organized museums,—rather than against any shooting for genuinely scientific purposes. No one objects, moreover, to the killing of animals such as deer and squirrels and the fur-bearers, whose flesh is needed or useful as food, or whose skins are valuable, if it is not done cruelly or wastefully. In all these cases the object is utility; the sport is altogether subordinate. Finally, it is not to be denied that the healthful exercise and mental enjoyment of sport is worthy of consideration; but the point to be emphasized is this: that when the ordinary methods of the sportsman are followed these advantages are purchased at too great cost for a humane man and true gentleman to pay.

The idea that no opportunities for enjoyment await the rambler through woods and fields except in the use of a gun is, happily, passing away. To maintain it is to admit that one's eyes and

ears are unable to appreciate the pictures and music with which woodland and wayside are filled, or that one's mind is not to be affected by the wonderful things which nature is constantly disclosing to the attentive observer, or else that one's soul can be satisfied only by the brutal delight of killing something.

I was once standing at a railway station in Canada, when the winter was just relaxing its icy grasp. Masses of snow were still banked in the fence corners, but here and there the grass was to be seen, the sun was shining, and every one stood out-of-doors basking in its warm beams, and apparently reflecting joyfully that soon the long siege of cold would be over, and leaves and flowers would enrich the landscape with color and fragrance. Yet what a shallow and ineffective veneer upon the character this gentler mood proved to be! At that moment a bird came flying over the desolate fields, carolling its sweet greeting, and perched upon the telegraph wire. "Oh, there's a bluebird!" exclaimed a half-grown youth to his companion, "let's kill it!" He stooped for a stone, and when I shouted, "Drop that!" all the people stared in amazement.

What sort of a disposition must those boys have had, who were eager to kill the first bluebird of spring in a winter-beset region? And what shall be said of the grown and presumably sensible people who saw no reason or were too weak-kneed to protest?

The blunting of the sensibilities in a person who either does or acquiesces in an inhuman act is a sure consequence, and is one of the worst consequences of the action. In the higher and farther-reaching sense cruelty injures him who inflicts it more than the creature on which it is inflicted. One bluebird more or less in Canada may be of small moment; but no community can afford to nourish or tolerate such a sentiment as the stoning of that little harbinger of spring implied.

One of the most satisfactory directions in which amateur photography has turned has been toward the "taking" of living animals in their native haunts. Here is a substitute for the gun. It has all the excitement of the chase, except the sight of the death-pang, and it brings back a durable memento of achievement—a trophy worth having. Like the hunter, the photographer

of living animals must know their habits, find their haunts, outwit their vigilance, and lull their suspicions. Modern, long-range firearms, with improved powder, make it a comparatively easy matter to get within shooting distance of almost any animal; but the sportsman who seeks to take the picture instead of the life of a wild creature, must stalk it far more carefully, get much nearer to it, and obtain a clearer view of it. Those who have tried it affirm that the uncertainty, cleverness, and excitement belonging to successful photography of this kind are far more than are required in shooting the same game, and *far more fun*. The trophies, too, are much more interesting. A stuffed hide, no matter how well done, requires a tremendous strain of the imagination that is asked to make it real; and a skin stretched as a rug upon the floor, or a pair of antlers hung against the wall, are useless to bring back the scene of the chase to any one except, perhaps, the hunter himself. But the photograph of a stag browsing in his native glen, of a woodcock crouched upon her nest, or a heron intently fishing in some reedy pool, unsuspecting that a camera has been focused upon it, forms a vivid memorandum whereby other eyes than those of the artist can realize the scene and share the pleasure.

What can be more sportive or sportsmanlike, or more exciting and enjoyable, than the search of a botanist for some rare plant, with the constant surprises that greet his observant eye, and the eager watch and hope for others? The naturalist needs no gun for his enjoyment, and only to a small extent for his work. As he ranges the woods with opera-glass, note-book, and collecting-boxes, his hours are full of amusement, his faculties are alert, and his mind is as pleasantly occupied as if he must kill everything he sees in order to satisfy the savagery left in him from the childhood of the race, or the more artificial and meaner feeling of rivalry with some other sportsman who has made a big bag. "There was a time," says the author of a recent and delightful book of English rambles ("within an hour of London Town"), "before I knew better, when I thought the gun was necessary to make a man acquainted with wild creatures; but the destructive

spirit has left me now; both gun and fishing-rod have been laid aside."

These are only hints or suggestions of the enjoyment reserved for him who leaves his gun at home; and he will find that instead of losing he has gained, for if really he be the true "sportsman" he vaunts himself, he cannot but feel a twinge of shame whenever some innocent creature yields its life in agony, that he may experience a momentary thrill of savage triumph. To-day he argues or crushes down these troublesome thoughts of self-reproach and sympathy; but having laid aside his gun, he will by and by come to perceive that it is better to let his nobler instincts prevail, and will conclude that the truest sportsman is he that is true to himself.—*Our Animal Friends.*

METOL.

THIS substance is closely allied to paramidophenol, being obtained from cresol and having the chemical structure $C_6H_3CH_3OH.NH(CH_3)$. The actual salt on the market is the sulphate, hydrochlorate, or oxalate of this base. It is a white powder soluble in water, giving a colorless solution which keeps in closed vessels for weeks, and the color of which is not affected by carbonate of soda. It is a strong developer for bromide plates, and even with sulphite of soda and no alkali it will develop chloride and chloro-bromide plates.

For bromide plates the following formula is recommended:

A. Neutral sodium sulphite	100 parts.
Metol	10 "
Distilled water	1,000 "
B. Carbonate of potash	100 parts.
Distilled water	1,000 "

In use, six parts of A to two of B are taken, and the image appears almost instantly, development being complete in about three minutes.

For soft pictures use half the quantity of B given above in two parts of water. The developer gradually becomes brown by use. Bromide of potassium acts as a restrainer when used in a small quantity.

For portraits, instantaneous and landscape pictures the following soda-metol developer is given:

A. Metol 10 parts.
Sodium sulphite 100 "
Distilled water 1,000 "

B. Pure crystals of carbonate of soda . . 100 parts.
Distilled water 1,000 "

Equal parts of A and B are taken.

For soft pictures one volume of the above and half its volume of water, or A is mixed with half or quarter the volume of B.

The development is said to remind one of the rapid development of the old time wet plate, it is so very energetic.

Dr. F. Stolze in his comments upon this new reducing agent gives the two following formulæ for developing plates and bromide paper:

1.

A. Water 600 c.c.
Sodium sulphite 150 grammes.
Metol 15 "

B. Water 400 c.c.
Potassium carbonate 100 grammes.

For use, 30 parts of A and 15 parts of B are added to 100 parts of water.

2.

A. Water 400 c.c.
Potassium metabisulphite 45 grammes.
Metol 15 "

B. Water 100 c.c.
Potassium carbonate 100 grammes.

For use, 20 parts of A and 20 of B are added to 100 of water. This developer remains colorless.

The author found that for developing bromide paper it was advisable to take 20 c.c. of A and 40 c.c. of B, prepared according to Formula 2, and add them to 1,220 c.c. of water. He states that this developer is very energetic, and as it absorbs oxygen but slowly, it does not become colored, and consequently does not stain the paper. He was able to develop ten prints in succession in the same developer, and could detect no difference between the first and last.—*Photo. Nachrichten.*

AS A DEVELOPER FOR POSITIVES.—Dr. E. A. Just recommends for sepia tones on gelatino-chloride plates the following developer :

A. Distilled water	1,000 parts.
Neutral sodium sulphite	100 "
Metol	10 "

To 50 c.c. of A, 1 c.c. of a 10 per cent. solution of potassium bromide is added. The plate is exposed for four seconds to diffused daylight.

For red tones, 25 c.c. of the above solution A are taken, and to it are added 75 c.c. of distilled water and six drops of potassium bromide.

The exposure should be for from five to six seconds as above.

By the use of an alkaline carbonate a more vigorous developer can be made as follows :

For sepia tones with gelatino-chloride plates :

Solution A as above	6 c.c.
Potassium carbonate (10 per cent. solution)	1 c.c.
Distilled water	84 c.c.

to which are added ten drops of a 10 per cent. solution of potassium bromide. Exposure, four seconds as above.

For red tones on chloride plates :

Solution A as above	6 c.c.
Carbonate of potash or soda (10 per cent. solution)	1 c.c.

Distilled water 140 c.c.
 Potassium bromide (10 per cent. solution) 7 drops.

Exposure, five to six seconds as above.

For black tones on gelatino-chloride plates he recommends the following developer :

Solution A as above 30 c.c.
 Potassium carbonate (10 per cent. solution) 5 c.c.
 Water 35 c.c.
 Potassium bromide (10 per cent. solution) 4 drops.

Under similar conditions the exposure must be reduced to one second.

A clearer black is obtained with the following, and this formula can also be used for gelatino-bromide paper :

Solution A 60 c.c.
 Potassium carbonate (10 per cent. solution) . . . 10 c.c.
 Potassium bromide (10 per cent. solution) 4 to 8 drops.

Exposure, a half second to daylight as before in the case of chloride.

The following formula gives good results with gelatino-bromide paper, with one-third the exposure requisite for the ferrous oxalate developer :

Solution A 50 c.c.
 Potassium carbonate (10 per cent.) . . . 10 c.c.
 Potassium bromide (10 per cent.) . . . 10 to 16 c.c.

Or the following can be used :

Solution A 60 c.c.
 Potassium carbonate (10 per cent.) . . . 20 c.c.
 Potassium ferro-cyanide 5 grammes.
 Potassium bromide (10 per cent.) . . . 12 drops.

—*Photographische Correspondenz.*

An effective advertisement is a fair estate.

A little advertisement may save a deal of idleness.

PIN-HOLE PHOTOGRAPHY.

BY J. FAVRE-BRANDT.

READ BEFORE THE PHOTOGRAPHIC SOCIETY OF JAPAN.

ATTENTION has been called many times to the quality of photographs that can be obtained in a darkened chamber, or camera, without special optical apparatus, simply by means of a small hole in a very thin plate.

Amateur photographers can make pictures, pretty large in size, of landscapes, and even of monuments, without being obliged to buy lenses costing from \$10 to \$300.

No doubt to reproduce plans and engravings it is necessary to use the famous lenses of Ross, Dallmeyer, Beck, Hermagis, Francais, Nadar, and others. But we wish to perceive, when we examine a photograph, the particular effect which is produced on a more or less near-sighted eye by its entire surroundings, when it looks at nature from a little distance. It seems to us that suppressing the lens and replacing it by a pin-hole gives more artistic results as far as regards monuments, or landscapes without moving figures.

"Nevertheless, far from us," says the *Amateur Photographer* (journal), "is the idea of crying down the photographic lens, which has in the last year attained so great perfection; for in the greater number of cases these instruments are, and will remain, indispensable;" but leaving out the instantaneous photograph, which has such charm for the amateur; and the portrait, the specialty of the professional, let us confine our ambition to obtaining in as artistic a manner as possible, either landscapes or copies of monuments; and of these latter there are certainly no lack in Japan.

M. Meheux says that the most suitable hole is round, and drilled in a plate of copper or sheet brass of 2-10 millimetre in thickness; it is necessary that the borders show no burr, and are beveled, forming a cone.

Captain Colson has remarked that, although the depth of focus is unlimited, the greatest sharpness of definition for each size of hole is found at a determined distance, and he has succeeded in finding the proper focal distances for different diameters of holes; he has thus found that:—

The best definition for a hole 3-10 millimetre is at 11 centimetre.

The best definition for a hole 4-10 millimetre is at 20 centimetre.

The best definition for a hole 5-10 millimetre is at 30 centimetre.

The best definition for a hole 6-10 millimetre is at 44 centimetre.

It may be mentioned that the size of the object to be reproduced is proportional to the distance from the apparatus, and to the distance from the hole to the sensitive surface.

It follows from this rule, that after having taken, for example, one view of an entire Cathedral with a focal length of 20 centimetres, say with the 4-10 millimetres diameter of hole, if we wish to have the details of the gate-way without moving from our place, it is sufficient to lengthen the focus to 44 centimetres, and to use the 6-10 millimetres hole.

We may further remark that the *Stenope*—the name given to the above mentioned plates—easily includes an angle of 100 degrees, or even more, without at all deforming architectural lines, and without destroying the perspective, which is far from being the case with even the most perfect wide-angle lens.

The length of exposure presents much less difficulty than with lenses. Unless we expose enormously beyond the proper time, it is nearly impossible to over-expose; we can always obtain a good negative by developing intelligently.

Nevertheless, if one must have a general approximate rule, we may say as a general proposition that the time of exposure is at least twenty-five times longer with the 3-10 mm. hole than with a lens focussed upon the same view and provided with a medium diaphragm; fifty times longer with the 4-10 mm. hole; one hundred times longer with the 5-10 mm. hole, and two hundred times longer with the 6-10 mm. hole; it being well understood that we use the focal lengths corresponding to these holes.

But we can modify these times of exposure without over-exposing the plates; on the whole, this depends very much on the

plates, the developer, and the actinic power of the light. Experience will be the best guide for every class of picture. Just the same as in Nature, the sun has here great influence on the clearness of the view, more than it has when using lenses.

To sum up the advantages of using the *Stenope* :

- (1) More artistic definition than with the lens.
- (2) Unlimited depths of focus.
- (3) Perfect perspective for lines in architecture.
- (4) Mathematical exactness in the scale of plans.
- (5) The angle of view can include as much as 170 degrees.

All the proofs, under the numbers 1, 2, 3, and 4, represent the same subject, and are taken with the same apparatus from one and the same distance, say 20 metres from the corner of a house marked A. The number representing the house and garden was taken with the 3-10 mm. hole, distance from hole to sensitive plate 11 centimetres, time of exposure 1 minute 25 seconds.

No. 2 view from the same plate with the 4-10 mm. hole, 20 centimetres from the plate.

No. 3 is taken with the 5-10 mm. hole, 30 centimetres from the plate, and finally No. 4 is taken with 6-10 mm. hole, 44 centimetres from the plate; distance between the apparatus and the house 17 to 20 metres. Time of exposure varies in the different numbers from 1 minute 25 seconds, to 2 minutes 30 seconds.

U. of Pa. Camera Club.—The Camera Club of the University of Pennsylvania gave an exhibition in the chapel. The club has adopted a new method. Meetings are held every month, at which meetings the members bring in anything new in the line of photography, and a short discussion is held, after which the lantern slides made by the members during the month are exhibited. At the meeting last evening the President, Mr. Burr, and Mr. Busch, read short articles. The officers of the club are: President, H. C. Burr, '93; vice-president, H. P. Busch, '93; treasurer, J. H. Colket, '95; secretary, G. D. Codman, '94.

The firm is dead that does not advertise.

THE PLAGUE OF MEDALS.

BY HECTOR MACLEAN, F.G.S.

IN view of the appalling deluge of gold, silver, and bronze raining upon the photographic world in the shape of medals, which in too many cases represent premiums of considerably less intrinsic value than the cost of the material from which they are made, a few remarks upon the present want of system in bestowing "metallic honour" upon candidates for fame are not uncalled for.

The practically unlimited multiplication of worthless, or comparatively worthless, tokens, is not only undesirable in itself, but is, moreover, a very grave injustice to those who have in past times nobly earned their rewards by work well done; for it is in most quarters admitted that in our degenerate days to be merely the winner of a medal, is to receive no more distinction than is a peerage in that all-honored community sung of by W. S. Gilbert, where "Dukes were three a penny."

The question is, How shall we restore to this should-be precious emblem of success its pristine value? No doubt there are more ways than one in which this may be effected. In the present communication I do not intend to try and exhaust the alternatives; let me, however, in passing, say that it would be well if at its next gathering the Photographic Convention should, putting on one side some of the highly-diluted topics in which it seems to find a calm delight, bring this question to the forefront, and seek by some authoritative *pronunciamento* to stay the cruel kindness of those who are in truth burying photography beneath a heap of metal discs.

Let there be no mistake,—I am not protesting against tangible rewards. I can even bear with that somewhat maligned individual, the pot-hunter; for, if one man can by superior ability sweep the board, why should he not do so?—providing, of course, that this be not effected by means of a plucky production, but by sustained and repeated excellence. All I urge is that a medal shall

be an honest certificate that the winner has done something notably praiseworthy.

The first step to take in bringing about the much-needed reform is, I venture to think, to consider whether any improvements are possible in the system of awarding medals adopted by the Parent Society. Clearly it is a case with the aforesaid of *noblesse oblige*; and, besides, the value of example is considerable. As an individual who belongs neither to the above nor to the Charing Cross-road Club, I may perhaps be credited with approaching this somewhat delicate phase of the subject without possessing any undue bias; if I have any predilection at all it is in favor of renovating, rather than wrecking, an institution that can point to such a useful and distinguished past as can the Photographic Society of Great Britain. Although, as above explained, I am, to some extent, "out on the terrace," yet, as the working president of an unusually active provincial society, and also in other capacities which need not be particularised, a considerable volume of genuine and uncolored opinion has come to my ears regarding the Pall Mall medals, which for reasons that are both good and politic do not see light in the press; none the less these *voces populi*, because they are free as air, are, when found to be in substantial accord, deserving of more than passing attention. Without of necessity endorsing the opinions I have found to prevail, I give them below for what they are considered worth. They come under three main heads:

1. Too many medals.
2. Medals given for poor work.
3. Favoritism.

Respecting the first point, there certainly seems an absolute consensus, to which I also subscribe, that the Judges have woe-fully "cheapened Paradise." As to grumble the second, less unanimity prevails. Of course, as long as there exists a critical faculty, and it does not seem to be dying out just yet, so long will there be found criticsasters to impugn the decisions of those who have to give the palm.

Still, it would almost seem that an improvement on the present methods of judging is not impossible, of which perhaps more on a

future occasion. Coming to that ill-flavored suggestion of favoritism, personally I think there is but small foundation for any such accusation. It is of course inevitable that a given man will have greater sympathy for, keener appreciation of, some particular form of photographic expression than for another form which may perchance be at least equal, and, in some folks' estimation, vastly superior.

But to see pink where another sees blue is not to be guilty of conscious partiality; and if a man prefer portraits seemingly taken in twilight, should we wax wroth at his admiring landscapes which represent smiling nature as being in a perpetual condition of dismal dumps?

Of course, over and above individual predilections and aversions, there are such disturbing things as friendships, clubs, commercial considerations, and coteries as "rings," which, having as a rule their headquarters in London, are certainly not favorably thought of by provincials, nor by others who are without the pale.

Allowing, for the sake of argument, that such closed circles use their influences unworthily, it is to be remembered that the Photographic Society of Great Britain is in no wise responsible for their existence.

Of course ardent reformers always shout for a complete upheaval rather than a revision, but to me and most others it would appear that, without on the one hand taking too seriously these mutterings, which, though at present, not particularly loud, are decidedly deep, the executive might well, by the timely introduction of a few remedial regulations, greatly reduce the causes of dissatisfaction. Upon this point it will be my pleasure to submit some remarks in a future article, which, being prompted by a spirit of friendly advice, may possibly not be unhelpful to the powers that be.

Wood Pulp as Absorbent.—For the purpose of rapidly drying filters and various preparations, discs or plates of wood pulp are recommended by Paul Hartmann. These discs may be coated with cellulose, whereby they become smoother. They soak up liquid more readily than plates of clay or gypsum.—After *Zeitsch f. anal. Chem.*

THE NEW DEPARTURE OF THE TURKEYTOWN HYPO CLUB.

AT the late meeting of the Turkeytown Hypo Club a resolution was offered and unanimously passed that the board of censors who control the club have a number of medals struck for the use of the club—these medals to consist of three classes—bronze, silver, and gold,—and are to be used for future exhibitions as follows: at exhibitions of the club, where there is no outside competition, the bronze medals are to be awarded to the chosen few decided upon; at exhibitions where pictures are entered from any other city in this country, the silver medal is to be awarded to a member of the Turkeytown Club, while at an exhibition where there is competition from a foreign country the gold medal shall be awarded to a member of the Turkeytown Club.

It is an implied understanding that no ordinary member of the club is expected to enter into competition for the above prizes.

It is expected that the new departure of the club will add much to its usefulness and to the advancement of the development of the photographic art.

Photographic Medals.—While a few photo-anglo-maniacs on this side of the water are attempting to introduce the medal nuisance in our local clubs, intelligent and conscientious workers in Great Britain are striving to abate what has become there an unmitigated nuisance in club circles. Our contemporary, *Photographic Work*, in the last number at hand, remarks editorially, "Should the unbridled medal-hunting of the past few months continue in its present fervor, some pan-photographic synod will have to sit and definitely pronounce on the previous exhibit question."

A world of wealth lies in that one word,—advertising.

Let thy advertisement be short, comprehending much in a few words.

ARISTOTYPES.

THE American Aristotype Company have issued the following instructions for working the well known "Aristo" paper, and which deserve the careful attention of all professional photographers:

Synopsis of Instructions.—1. Dampen and flatten your prints for five minutes. 2. Put them through four hot water baths, five minutes each. 3. Treat them to a cold water bath. 4. Tone in any good albumen bath, neutral and not less than eight minutes speed. 5. As the prints come from toning bath, throw into acidified water. 6. Fixing and final washing.

Detail Instructions.—Washing.—1. Take a large, shallow, smooth bottom tray and wash it out with hot water. This cleans and warms the tray. The water to be used through all these hot baths should be about 110 degrees F., or as warm as one can comfortably hold his hands in. DO NOT SEPARATE THE PRINTS WITH YOUR HANDS, OR HANDLE THEM OVER IN ANY WAY from the time they are put into the first water until they are to be taken out to tone.

2. Put in your tray a little warm water, JUST ENOUGH TO NO MORE THAN SATURATE OR THOROUGHLY DAMPEN YOUR WHOLE BATCH OF PRINTS. Then put your prints into this tray, one at a time, face down, and over-lapping each other an inch or so, as you would on your pasting glass, patting each print down with the flat of your hand as you put it in, until it sticks flat to the bottom of the tray or the print under it, WHICH IT WILL READILY DO IF YOU DO NOT PUT IN TOO MUCH WATER. When the prints are all in and dampened keep them flattened down for five minutes; this prevents future curling. Then incline your tray, press out all the water you can from them with the flat of your hand, and pour it off.

3. Now pour into tray at one corner, NOT ON BACK OF PRINTS, sufficient hot water to considerably more than cover them. Slip a narrow slat under the bottom of your tray and rock your tray gently over it so that the motion of the water will loosen up the prints and dissolve out the free silver. After five minutes pour off this water. Repeat this last warm water bath three times more, in every particular. Allow the warm water to remain on the prints five minutes for each bath, and every time you change the water set your tray on end and press out all you can from the prints with your flat hand, as it helps to remove the free silver and prevents curl. If the prints have a tendency to rise and curl above the water, push them down with your flat hand.

4. After the last warm bath has been poured off, admit cold water to the tray sufficient to cover the prints and leave them in it until you are ready to tone. This hardens size in paper and makes it strong.

Toning.—Tone in any good albumen bath, only observe the following points: 1st. It takes less than half the gold which is used for albumen to the same amount of water. 2d. Use a liberal bath as to volume. 3d. Make speed of bath about eight minutes; no faster. 4th. Make bath just as near neutral as possible, never acid, and never more than slightly alkaline, only when there are deep shadows to clear, the alkalinity of the bath may be increased a little. A decidedly alkaline bath makes muddy tones. 5th. For finest tones use the pure "Aristo" gold.

Intermediate Water.—As prints come from toning bath throw them into a tray of cold water, made decidedly acid to taste, by a few drops of acetic acid.

Fixing.—Fix twenty minutes in hypo bath, 12 hydrometer test, or about one ounce saturated solution of hypo to every ten ounces of water. It is very important that this bath should have sufficient bulk for the number of prints to be fixed, and it is recommended that it contain not less than 16 pints of bath for every hundred prints to be fixed, and it should be used but for one fixing and then thrown away.

Final Washing.—Frequent change of water and not soaking washes out the hypo from a print. One hour in a tank of running water that siphons completely off every five minutes is sufficient, or six or eight changes of water when prints are separated by hand.

Mounting.—Mount in usual manner, making paste of half flour and half starch and quite heavy. Rub down prints on mounts hard between clean blotters with a squeegee. Do not lick or sponge them down.

Spotting.—Spot with "Aristo" Spotting Color, or mix ordinary spotting color with white of egg. Beat the egg a little before rubbing in color.

Burnishing.—Use rotary burnisher. Allow prints to thoroughly dry before burnishing. Never stack "Aristo" after mounting back to face, but ALWAYS FACE TO FACE, AND DO NOT WEIGH THEM DOWN. They will not stick as albumen will. Very hot burnisher for brilliant surface; cold roller for mat surface. If lubricator is desired use a little Castile soap, rubbed on lightly with soft flannel cloth or tuft of cotton.

Negatives.—The finest "Aristo" results are obtained by a full time exposure with a broad, soft light. Use your favorite developer, but dilute it, giving slow development. Allow negatives to dry slowly; this prevents harshness and unevenness. You then have a soft, not thin, negative, full of detail and well balanced.

Varnishing.—Always varnish your negative with collodion, made by dissolving three grains gun cotton in one-half ounce ether and one-half ounce alcohol. Warm negative before flowing and dry by gentle heat. This will prevent sticking and silver stains.

Cracking.—This is caused by bending paper too sharply, and occurs mostly in examining prints during printing. Use between print and frame back a pad of thin blotting paper. This will not only support paper when turned up for examination, preventing cracking, but will give print much better contact with negative.

Printing.—Print a little darker than for albumen. When the rays of the sun are hot, print under tissue paper. Put your prints into a clean blank book to keep them flat. You can keep them two weeks between printing and toning if necessary.

Red Spots.—These may come from touching the face of the paper with the fingers at any time before it is put into the baths, or from printing on unvarnished negatives, or from touching the varnished face of the negatives with the fingers, or from the film not having been softened by neglecting to rock the washing tray during the warm baths so as to give the water thorough access to the face of each print.

White Spots.—White spots or measles are either hypo indications from insufficient final washing, or else are caused by fermentation of paste after mounting.

To remedy this, do not stack prints together after mounting, but spread them out where the air can get to them thus drying them quickly. Also see that your paste is sweet and fresh. Squeegee water well out of prints before mounting. While drying always stack your prints loosely face to face, without weights.

Burnishing.—Burnish prints flat, not on a curve. The effect is more artistic and they are less liable to scratch in albums. Use rotary burnisher if possible.

Saturated Solutions.—Should be made with warm water, and a little more of the chemical to be dissolved should be put into the water than the water will take up, so that a little sediment will always remain in the bottom of the bottle.

KALONA.

THE New York Aristotype Co., of Bloomfield, N. J., have put a new collodio-chloride paper on the market under the name *Kalona*. The following instructions are issued for the successful manipulation of the new paper.

Print up to good strength, about two shades darker than required in finished print. Use direct sunlight with good strong negatives, cover weak ones with grass bleached tissue paper, or two thicknesses of ordinary tissue paper.

Place paper in and remove from printing frame in subdued light, with clean hands, never allowing fingers to touch the surface, as red spots result.

When ready to commence toning place prints singly, face downwards, in as shallow water as possible to prevent curling, or, better, first dip prints in warm water, 115 degrees Fahrenheit, and then quickly place face downwards, on a slightly inclined tray, gently patting them until no tendency to curl is noticed. Allow them to remain thus from eight to ten minutes, then continue washing until all milkiness disappears. Gradually reduce temperature of each successive wash water. Rock dish gently to separate prints between each change. Use cold water for final washing before toning.

The following Toning Baths will be found to give good results.

No. 1.

Water, 48 ounces.
Acetate Soda, 75 grains.
Borax, 75 grains.
Add neutral Gold enough to tone.

No. 2.

Water, 48 ounces.
Phosphate Soda, 90 grains.
Add neutral Gold enough to tone.

No. 3.

Water, 48 ounces.
Tungstate Soda, 150 grains.
Add neutral Gold enough to tone.

Have plenty of bulk to toning bath, so that each print is singly and thoroughly saturated. Toning baths should be made up at least twenty-four hours before using. Be sure toning bath is slightly alkaline at

all times, testing occasionally with litmus paper. The toning bath should not work too quickly, from eight to twelve minutes for each batch of prints. After prints are toned place in large intermediate water bath before fixing.

FIXING BATH.

Hypo, 3 ounces.
Water, 64 ounces.

Fix not less than fifteen minutes, keeping prints in constant motion. After prints are taken from fixing bath a thorough rinsing in four or five changes of water is necessary to remove the excess of hypo before placing in trays or tanks for final washing.

The complete elimination of hypo from the prints is absolutely necessary, for any of it remaining causes discoloration. Therefore, do not allow prints to lie in a mass at the bottom of washing sink. Move them about and separate them one from another. One hour's good washing done as above is sufficient. Don't leave prints in water over night.

Mount in the usual way using any good stiff paste. Use medium hot burnisher.

A PERVERSION OF PHOTOGRAPHY.

IN the report of the Secret Service department of the U. S. Treasury for the year ending June 30th 1892, A. L. Drummond, chief operator, reports that his force during the last year detected and arrested the makers of two very fine photographic counterfeit notes, one on the \$5 issue of the First National Bank of Bay City, Michigan, and the other of a United States issue of \$20 gold certificate. So well organized is the Secret Service force under Chief Drummond that not more than six notes were put in circulation before the maker was located and arrested.

In the case of the gold certificate, the reproduction was so skilfully done and the work so finely executed that it would have worked great mischief. The photographic counterfeiter however was quickly detected and arrested, and as it was, only two of them were put into circulation.

As a result of these captures the museum of the department is enriched with the following photographic specimens, viz.: three glass negatives of \$10 silver certificates, eleven glass negatives for \$5 silver certificates, one glass negative for seal for silver certificate, three zinc etchings for \$5 silver certificates, 2 zinc etchings for seal of silver certificates.

The Editorial Dropshutter.

The Photographic Congress Auxiliary.—Our worthy contemporary on the Pacific slope, usually so urbane and genial, seems to have entirely misunderstood, if not wilfully misrepresented, our editorial on the "Photographic Congress Auxiliary" published in the November JOURNAL, and in his comments in the *Pacific Coast Photographer* for December, misrepresents the position of the AMERICAN JOURNAL OF PHOTOGRAPHY, as well as the editorial staff, when he intimates that the editorial in question was induced by a failure to gain any recognition, or *desired* distinction for the AMERICAN JOURNAL OF PHOTOGRAPHY or its editorial staff at the hands of the Committee's Chairman.

If our learned occidental conferree will read our paper over carefully and without bias, he will find that it is the last thing the writer had in mind to oppose anything which would lead to the success of the photographic section of the World's Fair at Chicago in 1893, and that it was in the interest of the enterprise that we published the editorial at which our California brother takes umbrage, and not in a spirit of opposition as stated.

Had this been done our would-be censor would hardly have made the wild statement about "soreness troubling the editorial staff" of the AMERICAN JOURNAL OF PHOTOGRAPHY, caused by the failure to gain any desired distinction at the hands of the chairman of the committee of the Photographic Congress Auxiliary.

As a matter of fact there is no use of any denials. The action of the committee in charge has caused more or less unfavorable comment in photographic circles throughout the country. We repeat the statement made in our previous paper, that personally we have no grievance. In the preparation of the editorial, personality did not enter into our thoughts for a moment.

It has always been the policy of the AMERICAN JOURNAL OF PHOTOGRAPHY to keep aloof from all entangling alliances, free from factions, and independent on all questions. The main object of the publishers and editorial staff has always been the advancement of photography in its widest sense, and this course will not be deviated from to please anyone.

In conclusion we will call the attention of our brother of the Pacific coast to the concluding paragraph in our November editorial, which plainly sets forth our position regarding the World's Fair, viz. :

"That whatever committees be in charge will act with wisdom, care, and impartiality, having in mind the advancement of the art, irrespective of personal favoritism or sectional jealousies."

Amidol.—As there are two developers put on the market under above title, it is but just to state that our remarks on Amidol in the December JOURNAL were based upon samples received from Messrs. Schultze, Berge, Koëchl, and Movius, and G. Gennert, of New York, both samples being from the laboratory of M. J. Hauff, in Feuerbach, Germany.

There are some photographers who never look beyond their own backgrounds, and know nothing of what goes on in other studios or the photographic world at large. They live in a clam-like complacency, like the turtle within its own shell, drawing in their heads and shutting themselves in tightly at the mere mention of progress or advancement.

Photography is a progressive science,—an institution of the present active, pushing era,—and not a relic of the dark ages of the past. The photographer who stands still where he was, say but a few years ago, is bound to be distanced by his more active rival who keeps abreast of the times.

The only way to keep in touch with success is to know what is doing in the successful studios in your own and neighboring cities, and to keep posted in the latest strides made in photographic research.

The best and only way to reach this road to success, is, in connection with good work, to subscribe to and read regularly one or more of the photographic periodicals published in this country or Europe.

Naturally we recommend the AMERICAN JOURNAL OF PHOTOGRAPHY to your favorable notice; if you want any other periodical consult our clubbing list, and send us your subscriptions, and get both publications at a reduced price.

It is rumored that a somewhat prominent member of the Photographic Society of Philadelphia intends to take the lecture platform in opposition to Stoddard.

The Expired Platinum Patents.—And now our London contemporary, *Photographic Work*, falls into line and informs its readers that:

"Platinum printing and toning in photography will probably take an increasingly important position, especially as now the most important processes of platinotype are free from patent restrictions."

A fact of which we informed the photographic public almost a year ago, and wonder if Mr. Humphreys will attempt another denial.

Chemistry of Development.—Members of the Photographic Society who take an interest in the "Chemistry of Development," can find Professor Meldola's lecture on that subject, with diagrams, complete and ungarbled, in Macmillan's "Nature Series" of 1889, Lecture V., pages 142-176.

In our time we have seen some queer incongruities in advertisements, in which photography played a part. In our last number we gave an account of how photography and "superstition" were associated in a quiet Pennsylvania German town. Now a correspondent sends us a marked copy of *The Echo*, published in Cumberland, Ohio, containing the following announcement:

If you want a | FIRST-CLASS PICTURE | call at | MOOR-HEAD'S | over | Rodecker's, | and while there, just step into his | OFFICE | where he is prepared to extract teeth and attend to all branches of | DENTISTRY. | All work Guaranteed, and at Reasonable Prices.

Now what we would like to know is whether the photographs are taken before or after the teeth are extracted, and which makes the most pleasing cabinet—a subject with the toothache, or the same subject just after the aching molar has been extracted.

Hy-Jenny-Kins Club.—The ladies of the California Camera Club kindly invited us to be present at their Hy-Jenny-Kins Club rooms on the 21st ult. We are sure that we missed a good time by not being present. We congratulate the California Camera Club on having so pleasant an adjunct as the Hy-Jenny-Kins.

Charter Granted.—Among the charters granted at the State Department Nov. 21, 1893, was one to the F. Gutekunst Company, Philadelphia, for the manufacture and sale of all kinds of photographs, photogravures, picture prints, etchings, engravings, lithographs, picture frames and mats, and similar products. Capital \$100,000. Directors, Frederick Gutekunst, Christian Faser and John N. Hastings.

Lantern Slides of Life and Character.—The following communication hails from our Editorial brother, Walter D. Welford, Esq., 47 Hagley Road, Birmingham, England, and is worthy the consideration of all of our readers. Brother Welford is the editor and proprietor of the *Photographic Review of Reviews*, which gives a synopsis of the current photographic literature of the world.

LANTERN SLIDES OF LIFE AND CHARACTER.

"I am desirous of obtaining studies of life and character in all parts of the world, and although I know it is a tall order yet venture to utilize your columns (with your kind permission) to make known my yearning desire. First, however, I don't want something for nothing, but for every slide sent me an equivalent will be given. My offer is to give slide for slide. Any of your readers who may be in possession of hand camera studies of street life, native characters or scenes, which will illustrate the life of the particular country, I should like to hear from. I will exchange any number (not exceeding 18) slides of English street life and character for a corresponding number from a foreign or colonial fellow-worker. Although hand camera shots would be preferred as giving better renderings of life, yet I by no means wish the series thus limited. My object is to form a set of slides of an interesting and instructive nature, which will be ready for use by next season. I should be glad to hear from any one in this country as well who may possess suitable slides taken by them on a holiday trip abroad."

WALTER D. WELFORD.

47 Hagley Road, Birmingham.

Resigned.—We regret to announce that Mr. George Wood, the well-known artist and photographer, has severed his connection with the Photographic Society of Philadelphia. Mr. Wood was a useful, conscientious worker, and his loss will be felt by the Society at large. Resignations from the Society have been entirely too frequent of late.

Prof. Arthur H. Elliott, Ph.D., F.C.S., Prof. of Chemistry and Physics, College of Pharmacy, City of New York, who, for the past eight years, so ably edited *Anthony's Photographic Bulletin*, retires from the editorial chair with the close of the present volume, on account of failure of his eyesight. The photographic press at large suffers a severe loss by Prof. Elliott's retirement. Prof. Elliott has our sympathy in his affliction, which we trust, however, will be but temporary.

PHILADELPHIA'S SHARE IN THE DEVELOPMENT
OF PHOTOGRAPHY.

THE thirteenth lecture in the Franklin Institute course for 1892-3 was delivered last evening by Mr. Julius F. Sachse, editor of the *AMERICAN JOURNAL OF PHOTOGRAPHY*, on Philadelphia's share in the development of photography. The speaker, in a short introduction, stated how the news of Daguerre's invention first reached America, and then proceeded to set forth the claims of Philadelphia scientists in the development of the art-science, proving by reference to documentary evidence in the archives of the American Philosophical Society, the Franklin Institute, and the early files of the *Public Ledger*, that Philadelphia may well be considered the mother city of the widely-disseminated photographic art of the present day.

The fact that photographic portraiture was pure and simple a Philadelphia invention was brought out in strong relief. One of the most curious facts recounted was that Daguerre, after formulating his process and pocketing his pension, never did anything to perfect his crude process. In his public demonstrations it took him just 72 minutes to produce a finished view. A well-known scientist, Dr. Paul Beck Goddard, however, within three months after the process became known in Philadelphia, perfected it by the use of bromide, and reduced the time to a fraction of a second, a discovery upon which rests the whole photographic structure of the present day.

Not the least interesting feature of the lecture was the fact that notices and advertisements in the newspapers of the day aided in sustaining Philadelphia's priority. Thus in the *Public Ledger* for July 1st, 1841, will be found Robert Cornelius's advertisement of his resumption of portraiture in his second studio, setting forth that he can now make pictures without regard to the state of the weather—the first known record of this great advance. Again, when the first specimens of interior photography were made and exhibited at the Franklin Institute Exhibition in the Chinese Museum, in 1844, the importance escaped the notice or was ignored by the Institute Committee; not so, however, with the

reporter of the *Public Ledger*, and on October 25th, 1844, we find in his report :

"They have several daguerreotype views of the Exhibition, taken from favorable points, which took very well, and are, of course, accurate, but unavoidably left-handed."

Another curious advertisement was quoted from the *Public Ledger* of December, 1855, where a man testifies that a series of stereoscopic views of American scenery were genuine, as he had accompanied the artists on their trip.

At the close of the lecture a number of specimens of early photographic efforts were thrown on the screen, in contrast with specimens of the present day. Early daguerreotypes, Talbotype, paper negatives and albumen plates, and plain paper prints gave an object lesson of the photographic art in its early stages. The first camera and studio outfit used by Dr. Goddard, in 1840, was also on exhibition.—*Public Ledger*, December 17, 1892.

Hanging Pictures.—No picture ought to be hung higher than the height of the average human eye, when the owner of the eye is standing, and it is a wise plan to consult congruity in the framing of pictures, and to attend to the rule that all their bases should be at one level. If there are so many pictures to be hung that one row does not include all, the remainder may form a second line, with regular intervals. It is just as easy to hang a picture by a single line of cord as by two lines diverging from the point of suspension, and with small pictures the effect is better.

A very large picture should, of course, be hung by a cord at each end. The means by which a picture is suspended ought not to be concealed or kept at all out of sight. There ought to be a good cord, that not only is but seems to be sufficient for its work. Some of the pictures may be relieved from the contrast with the wall by tastefully draping a little scarf upon their frames, not making up the material at all, but simply hanging it with artistic negligence over the top and down the sides of the frames.—*The Domestic Monthly*.

Know how sublime a thing it is to advertise and be famous.

Photographic Hints and Formulae.

Amidol.—According to Dr. Stolze, the following modification for stock solutions gives the best results:—

Water,	250 ccm.
Sulphate of Soda,	50 g.
Amidol,	5 g.

For use take: stock solution 1 part, water 4 parts.

Eikonogen for Density.—At the late meeting of the Photographic Society of Great Britain, Mr. Clifton said the quickest developer, and the one that gave most density, that he had ever seen or heard of, was that recommended by Messrs. Marion in the eikonogen circular, for exposures of one-thousandth of a second and under. He had not a shutter that would give such an exposure as that, but he had tried the developer on plates which he would have thought to be utterly under-exposed, and he got a dense image in a remarkably short time. The formula was—

Eikonogen,	1 part.
Carbonate of Potash,	2 parts.
Sulphite of Soda,	5 "
Water,	30 "

The developer had to be made up hot and used before it was quite cold, or it would begin to crystallize out.

Converting Gallic Acid into Pyrogallol.—On adding to gallic acid double its weight of aniline, the mixture congeals abruptly into a mass with a rise of temperature. On the application of heat, aniline-pyrogallate is obtained in long instable crystals, from which the aniline may be removed by cold benzine and toluene, leaving pure pyrogallol. The melting point of pyrogallol is 132° Centigrade, not 115° as usually stated.—*Comptes Rendus.*

Practical Hints.—Keep paper and prints in a cool dry place. Handle prints carefully in all washing, toning and fixing bath. Use papier mache or porcelain dishes. Don't use agate ware. If your toning bath works quickly, it is apt to cause streaks, flat and uneven toning. Prints should be kept damp before being mounted. Add five to ten grains of good gelatine to mounting paste. It prevents prints peeling from mounts. To keep prints over night lay between dampened blotters.

The Action of Light on Silver Chloride.—Silver chloride was exposed to light in a bulb connected with a long tube standing over potassium hydrate solution. A noticeable absorption took place when the bulb was filled with air or with oxygen. It was then attempted to find in what proportions the elements silver, chlorine, and oxygen were combined in the darkened substance; a direct analysis being impossible, an indirect method was adopted. In the first experiments the evolved chlorine was absorbed by potassium iodide, and the amount of iodine liberated was determined. The silver was ascertained by treating the blackened chloride with strong ammonia, and weighing the residual metal; and the oxygen by treating with chlorine and measuring the oxygen evolved. The results of one experiment were as follows:—

	Found.	Calculated for Ag_2ClO .
Ag.	78.94	80.75
Cl.	14.25	13.27
O.	6.81	5.98

Other experiments were made in which the oxygen absorbed and the chlorine evolved were determined in the same apparatus. The following are some of the results:—

	Oxygen absorbed.	Chlorine evolved.
I	1 atom	0.70 atom
II	I "	1.26 "
III	I "	1.12 "
IV	I "	1.26 "

The discrepancies are attributed to the small quantities worked with, and to the presence of unaltered silver chloride. It was found that the thoroughly dried darkened substance, free from oxygen, gave an amount of water when reduced in pure hydrogen showing an amount of oxygen differing from that determined by other methods by less than one per cent. If the analyses are not immediately performed, the determination becomes uncertain, as a fresh absorption of oxygen takes place when kept in the dark, so that probably another oxychloride is formed. If the darkened substance be really a darkened chloride it should not be produced in the absence of oxygen, and this was found to be the case, no darkening being produced in a vacuum, in carbon dioxide, or under pure dry carbon tetrachloride. The latter, however, must be carefully purified. When the darkened silver chloride is boiled with pure potassium chloride, the whole dissolves, silver chloride being found in the solution together with potash. The production of the alkali seems to prove that oxygen is present in the darkened substance in the combined state.—*H. B. Baker, M. D.*

Cleaning and Restoring Daguerreotypes.—These pictures frequently become obscured with a bluish film, and the picture is then said to be faded or “gone.” This is a mistake, for with a little pains they can be made as perfect as ever. Carefully remove the mat and glass, paying special attention not to touch the face of the plate in this or any of the after operations, for the least touch will leave a mark that can never be removed. If any gum paper adhere at the back, moisten and remove it. Hold the plate face upwards, resting it on the tips of the fingers, and allow water from the tap to flow over it; then pour over its surface a freshly-made solution of cyanide of potassium, about five grains to the ounce. Let the cyanide flow backwards and forwards till the discolored film is dissolved off. Sometimes an obstinate patch will remain after the rest of the plate is clean; pour the cyanide off and on at this place, as if developing, and it will disappear.

Be careful not to use the cyanide too strong, or the picture itself will be dissolved away. It is better to employ quite a weak solution, and take a little more time, than to run a risk of injuring the picture. Sometimes a solution of hypo—which never injures the plate—or even plain water, is sufficient to remove the obscuring film. If these means fail, cyanide will always be found successful. When the stain is all dissolved, wash the cyanide away, finishing with suill of distilled water, and dry the plate over a spirit lamp. The plate must not be allowed to dry spontaneously like a glass one, but must be finished off at once with direct heat. A pair of pliers should be used to hold the plate while drying, and the water should be made to evaporate from the upper corner downward in one steady, uniform wave, otherwise stains will occur. It will be impossible to dry the plate off clearly unless the last wash is with distilled water, as common water on evaporation precipitates its impurities on the plate.

If the above precautions be taken, the daguerreotype may be restored to all its original beauty.

Rust may be removed from finely polished steel, without injury to the surface, by cleaning the article with a mixture of ten parts of tin putty, eight of prepared buck’s horn, and twenty-five of alcohol, and then rubbing with soft blotting-paper.

The latest investigations show that bacteria are spheroidal, rod-like, or spiral. Under the most powerful microscopes they are found to have a granular mass in the centre, surrounded by a thin, structureless membrane.

Combined Shutter and Diaphragm.—A very simple suggestion for a combined roller shutter and stop has been recently brought to our notice. But in these days of redundant invention (such is the bewildering multiplicity of photo shutters), we must really disclaim responsibility for the suggestion that this device is a novel one. The idea is to employ a couple of rollers, over which an endless flexible band of opaque material is stretched. A pair of guide rollers is mounted near to each of the principal rollers, so that the free portions of the endless band are pressed together, nearly in contact, and capable of passing through the diaphragm slot. Two successive series of square apertures are cut in the endless band, each series of apertures being in descending order of magnitude. To expose, one of the rollers is turned until a pair of apertures of corresponding size is in the axis of the lens. When the exposure begins and ends in the centre of the field of view, this, of course, receives the longest exposure; but it is easy to move the appliance so that the distance or foreground, the right or the left side of the picture, receives the fullest illumination. In this case, one or both of the apertures in the belt may, with advantage, be elongated, and a supplementary fixed stop may be employed, so that want of symmetry in the lens aperture is avoided.

To Prevent Silver from getting Black from the absorption of sulphuretted hydrogen, one of the most efficient methods is to wrap the objects in paper containing or coated with white of lead. The latter may either be applied to the surface of the wrapping paper by means of starch paste, or the paper may be impregnated with a solution of acetate of lead, dried, then impregnated with a solution of sodium carbonate, and again dried. The paper will now contain acetate of sodium and carbonate of lead.

Only such objects can be fully protected by this paper as can be completely wrapped therein, so that the air may be entirely deprived of hydrogen sulphide.—*American Druggist*.

Very pretty note paper will be a fad this season among our fashionables. The popular old shade known as London smoke is now "rain cloud" and rose pink. Locust wing green and verbena red are to be a few of the startling novelties. One can imagine the effect a verbena red envelope with a pink 2-cent stamp and a black address would have on any beauty-loving postman.

There is as much diversity in the pictures of Columbus as if they had been taken by different instantaneous cameras.—*Washington Star*.

Society Notes.

COMMUNICATION.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

MESSRS. THOMAS H. MCCOLLIN & CO.,

Publishers AMERICAN JOURNAL OF PHOTOGRAPHY,
1030 Arch Street, Philadelphia.

DEAR SIRs:—It having been decided by the Society to publish its own Proceedings, the reports of our meetings will hereafter be mailed simultaneously to all the photographic journals. So far as it is in our power to control the matter, this arrangement will put all the journals on an equal footing in regard to time of our furnishing the reports, and will no doubt be more generally satisfactory than our former plan.

In making this change, we desire to extend to you our thanks for the trouble you have taken in the past in preparing and sending to us the galley proof of our reports, and to wish your most excellent journal continued and increasing prosperity.

ROBT. S. REDFIELD,
Secretary.

December 16th, 1892.

No Official report having reached us up to the time of our last form going to press, we print proceedings from our own notes.—ED.

The Photographic Society of Philadelphia.—A stated meeting was held on Wednesday evening, December 14th, 1892. The President in the chair.

The minutes of the preceding meeting were read by the Secretary in the usual low tone of voice; there being no objection the minutes were adopted as read.

A resolution was then offered by the Board of Directors awarding recognition and a gold medal to Fred. E. Ives for his distinguished contribution to the progress of the art-science of photography. This was unanimously adopted.*

* See Resolution in full, page 15 *ibid.*

A resolution was also passed to procure a die for a suitable medal for the Society's use.

A resolution was then offered by one of the directors: That whereas the minutes and proceedings of the Society were frequently published by the various photographic journals in a *garbled* condition, and weeks after the meetings had taken place, so as to be stale news; be it resolved that the Photographic Society of Philadelphia publish a journal of their own, which will set forth their proceedings, and that said journal commence with the present meeting, and that no more copy is to be furnished to the photographic press.

The paper of the evening was then read by one of the Directors on "The Chemistry of Development,"* in which it was attempted to show by argument and diagrams on the blackboard that the acid development of the wet process was a course of building up, while the whole theory of dry plate development was a system of etching or eating away by the use of alkaline developers.

After the paper was finished a member ventured the suggestion that the latest and most energetic German developer, "Amidol," showed an acid reaction, was used without the addition of an alkali, and yet produced the same effect on a dry plate, which was diametrically opposite to the theory advanced by the orator of the evening.

At this point the lights were promptly ordered turned down that an optical lantern could be shown arranged for use with the "Welsbach Light." For some reason this exhibition proved a decided failure, but whether the fault of the illuminating medium or grease on the lenses did not transpire.

An old "Prismatic Dioptic Dissolving Apparatus" was then shown. It was an old form of optical lantern dating back about forty-five years, the invention of Canon St. Vincent Beechey.

Adjourned.

Eight Kodak fiends took pictures of the statue of William Penn in a single day.

* For original diagrams, see Prof. Meldola's Fifth lecture.

THE SIXTH ANNUAL EXHIBITION.

THE Sixth Annual Exhibition of Photographs, under agreement between the Photographic Society of Philadelphia, the Society of Amateur Photographers of New York, and the Boston Camera Club, will be held by the Photographic Society of Philadelphia at the Galleries of the Pennsylvania Academy of the Fine Arts, April 17th to 29th, 1893.

These exhibitions are open to all photographers of the world, and bring together the very best pictures of the day where they can be studied and compared.

The foremost foreign photographers will undoubtedly be largely represented, and it is therefore hoped that with this early notice, our own countrymen will see to it that a display is made by American photographers which shall be up to the highest possible standard.

Circulars with rules and full particulars will soon be ready for distribution, copies of which may be obtained on application to the secretary of the Photographic Society of Philadelphia.

The Photographic Society of Japan.—The regular monthly meeting of the above mentioned Society was held on Friday, November 4th, at the rooms of the Geographical Society (Chigakukio Kai) Nishikonyacho, Kyobashi, Tokyo. Work done by Messrs. C. D. West and W. K. Burton during the summer vacation was on exhibition.

The regular meeting began at 5 P. M., Mr. G. Gilbert in the chair. The following gentlemen were unanimously elected members of the Society: Messrs. A. B. Brown, J. B. M. Barrett, P. C. E. Choissonné and G. Kiyokawa, Drs. E. Scriber and Augustus Wood.

Mr. Tanaka showed some results of experiments in collotype. They were not quite perfect, but were remarkable as the results of first attempts in this difficult branch of the photo-mechanical work, the more especially as Mr. Tanaka had worked entirely from written instructions. After trying various more or less complicated formula, he had settled on the following:

Bichromate of Ammonium	1 gram.
Pure Gelatine	6 grams.
Water	70 c.c.

He had found an admixture of isinglass, even in small quantities, the reverse of an advantage.

Messrs. W. K. Burton and K. Arito showed the results of experiments in orthochromatic work. They had set themselves the task of

getting photographs showing a brilliant *pure* scarlet, a bright but darkish blue, and a pure chrome yellow, in their true value. If these could be shown truly all other colors could. They had succeeded best with a mixture of eosine and cyanine. Eosine was a strong sensitizer for the yellow and the green, cyanine for the red and the orange. The following formula was used :

Cyanine solution 1 part in 1000	1 part.
Eosine solution 1 part in 1000	1 part.
Ammonia 10 per cent. solution	4 parts.
Water (distilled)	14 parts.

The plates were bathed for two minutes and dried. Of course such plates need the extremest care in working.

A yellow screen was used with plate glass sides, inclosing $\frac{1}{4}$ inch thickness of the following solution :

Picric acid	1 part.
Water	500 parts.

The intense but very light yellow color of a picric acid solution seemed particularly well suited to orthochromatization. With a denser solution than that mentioned it was possible to overdo the orthochromatization. The exposure needed was 10 times that with the same plate untreated, but without any yellow screen.

California Camera Club.—GENTLEMEN: Please find below a correct list of the Board of Directors of the California Camera Club: President, H. R. Hosmer; first vice-president, H. C. Tibbitts; second vice-president, F. E. Smith; secretary, Jas. W. Duffy; treasurer, Geo. W. Reed; corresponding secretary, Chas. Albert Adams; librarian, H. C. Owens. A. G. McFarland, C. F. Cormack, Geo. B. Butler, W. J. Street.

Very respectfully,

JAS. W. DUFFY, *Secretary*.

We acknowledge an invitation to be present at the club rooms of the Minneapolis Camera Club (incorporated 1892), Wednesday evening, December 21st, at eight o'clock. There was exhibited with the stereopticon the St. Louis set of lantern slides of the American Lantern Slide Interchange, to which the Minneapolis Camera Club has recently has been admitted as a member.

Literary and Business Notes.

NEXT to the article on Mexico, the feature of the January *Review of Reviews* that will deserve to attract the most attention affords another instance of the most remarkable enterprise of the *Review*. It is an article by a bright young American lady, who was married to a Frenchman and lives in Paris. She offered herself to Drs. Pasteur and Haffkine as the first woman who dared to submit to the experiment of being inoculated by the new method at the Pasteur Institute for Asiatic cholera. She has written of her experience and of the wonderful new cholera preventive; and her article is so recent that it was not received in New York until late in December. It is one which will be read and talked of everywhere. Simultaneous with the holding at Philadelphia of the second annual conference of University Extension workers and supporters for the whole United States, the January *Review of Reviews* publishes an article well illustrated with portraits which describes the remarkable development of the University Extension movement in various sections and localities of the country during the past year.

FINE CABINET PHOTOS.—We are in receipt of some fine specimens of cabinets from the studio of J. C. Sunderlin, of Flemington, N. J., which would do credit to any studio in the land. The Sunderlin studio is equipped with appliances for photographic work in all its various

branches, the same care being taken with exterior work for which the studio efforts are noted.

THE American Annual of Photography and Photographic Times Almanac for 1893. Scovill & Adams Co., 423 Broome Street, New York. The best of the American annuals. Three hundred and ninety-three pages of reading matter covering all departments of photography, furnishing information on all subjects for professional and amateur,—a volume for ready reference. The twenty-seven illustrations cover almost the whole range of photo-mechanical reproductions. It is a difficult matter to single out any of the special papers published in the annual on account of the almost universal excellence. Especial commendation, however, is due Mr. C. W. Canfield for his paper on the Daguerre portraits which supplements his exhaustive paper in the Annual for 1891, as it forms a valuable contribution to photographic history. Orders for the annual sent to Thos. H. McCollin & Co., 1030 Arch Street, will receive prompt attention.

FINE PHOTOGRAPHS.—We have received two fine photographs from negatives made on the Cramer Isochromatic plate. One represents Sol's clock, a floral decoration forming a living sun dial, the subject being in Washington Park. The other represents a monument in Lincoln Park in Chicago.



